



Docket No.: OKA-0019
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Tadayoshi Iijima

Application No.: 09/748,188

Confirmation No.: 2973

Filed: December 27, 2000

Art Unit: 1773

For: TRANSPARENT CONDUCTIVE FILM AND
METHOD FOR PRODUCING THE SAME

Examiner: Kevin M. Bernatz

APPEAL BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

As required under 37 C.F.R. §41.66(a), this brief is filed within the statutory term of the Notice of Appeal filed in this case on May 30, 2006, and is in furtherance of said Notice of Appeal.

The fees required under 37 C.F.R. §41.20(b)(2), and any required petition for extension of time for filing this brief and fees therefor, are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

This brief contains items under the following headings as required by 37 C.F.R. §41.67 and §1205.02 of the MPEP:

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X. Related Proceedings Appendix
Appendix A Claims

I. REAL PARTY IN INTEREST

The real party in interest for this appeal is TDK Corporation of Tokyo, Japan (“TDK”). An assignment of all rights in the present application to TDK was executed by the inventor and recorded by the U.S. Patent and Trademark Office at **Reel 011395, Frame 0593**.

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board’s decision in this appeal.

III. STATUS OF CLAIMS

A. Total Number of Claims in Application

There are 7 total claims in this application.

B. Current Status of Claims

1. Claims canceled: Claim 1
2. Claims withdrawn from consideration but not canceled: 4, 5, 6 and 7
3. Claims pending: Claims 2-8
4. Claims allowed: None
5. Claims rejected: Claims 2, 3 and 8

C. Claims on Appeal

The claims on appeal are claims 2, 3 and 8

IV. STATUS OF AMENDMENTS AFTER FINAL

Applicant filed an Amendment After Final Rejection on December 8, 2003. The Examiner responded to the Amendment After Final Rejection in an Advisory Action mailed January 14, 2004. In the Advisory Action, the Examiner indicated that Applicants' proposed amendments to claim 8 would not be entered. Applicant filed a Request for Continued Examination with a Preliminary Amendment on February 6, 2004. A non-final Office Action dated March 3, 2004 rejected claims 2, 3 and 8, with all claim amendments having been entered. Having been three times rejected, Applicant filed a Notice of Appeal on June 21, 2004. An Appeal Brief was filed on August 23, 2004 to which the Examiner responded with an Examiner's Answer dated November 2, 2004. A Request for Continued Examination was filed on January 3, 2005 in which an Information Disclosure Statement was submitted concurrently therewith. An Office Action was issued by the Examiner on March 4, 2005 to which a response was filed on September 2, 2005. A final Office Action was issued on November 28, 2005. Applicant filed a Response to Final Office Action and Notice of Appeal on May 30, 2006 in which no claims were amended. The Examiner responded to the Response to Final Office Action in an Advisory Action mailed June 13, 2006. In the Advisory Action, the Examiner indicated that Examiner has considered and entered the Response filed on May 30, 2006.

Accordingly, the claims enclosed herein as Appendix A incorporates all amendments to claims 2, 3, and 8, as indicated in the paper filed by Applicant on May 30, 2006.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Claim 8 recites a transparent conductive film comprising: a compressed layer 12 on a support 14, said compressed layer having conductive particles and a resin, said resin being approximately 0.03-9.3 parts by volume with respect to 100 parts by volume of said conductive particles, said compressed layer formed by compressing the conductive particles and the resin on the support with a compression force of at least 44N/mm^2 , wherein said compressed layer further comprises an impregnated transparent substance. The particles of the compressed layer is disclosed variously throughout the specification, for example, at page 12, line 19 to page 13, line 1; page 13, line 12 to page 14, line 1. The resin of the compressed layer is disclosed variously throughout the specification, for example, at page 14, line 2 to page 16, line 8. The support is

disclosed variously throughout the specification, for example, at page 19, lines 7-20. The impregnated transparent substance is disclosed variously throughout the specification, for example, where “the obtained conductive film has a low dielectric resistance and little scattering of light, since the voids in the compressed layer is impregnated with a transparent substance ...” at page 27, line 2 to page 28, line 10. Support is disclosed for the amount of resin being approximately 0.03-9.3 parts by volume with respect to 100 parts by volume of the conductive particles, for example, in Table 1.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Whether claims 2, 3 and 8 can be rejected under 35 U.S.C. §103(a) as allegedly being obvious over Yukinobu et al. (U.S. Patent No. 5,411,792) in view of Sumitomo Cement KK (JP 06-087631-A).

VII. ARGUMENT

In the Office Action of November 28, 2005, the following rejection was presented by the Examiner:

- (i) 35 U.S.C. §112, first paragraph

None

- (ii) 35 U.S.C. §112, second paragraph

None

- (iii) 35 U.S.C. §102

None

- (iv) 35 U.S.C. §103

1. The Examiner rejected claims 2, 3 and 8 under 35 U.S.C. §103(a) as allegedly being obvious over Yukinobu et al. (U.S. Patent No. 5,411,792) in view of Sumitomo Cement KK (JP 06-087631-A).

To establish a *prima facie* case of obviousness, the cited references, in combination, must teach or suggest the invention as a whole, including all the limitations of the claims. Here, in this case, the combination of Yukinobu et al. and Sumitomo Cement KK fails to teach or suggest the claimed limitation “*a compressed layer on a support, said compressed layer having conductive particles and a resin, said resin being approximately 0.03-9.3 parts by volume with respect to 100 parts by volume of said conductive particles, said compressed layer formed by compressing the conductive particles and the resin on the support with a compression force of at least 44N/mm²*”. In particular, the combination of Yukinobu et al. and Sumitomo Cement KK fails to teach or suggest the specific claimed limitations “*said resin being approximately 0.03-9.3 parts by volume with respect to 100 parts by volume of said conductive particles*” and “*said compressed layer formed by compressing the conductive particles and the resin on the support with a compression force of at least 44N/mm²*”.

As stated in Applicant’s Amendment dated September 2, 2005, Sumitomo Cement KK discloses in paragraph [0007] that “*said high conductivity layer is formed by the conductive paint whose rate of the transparent conductive filler in said content is 62.5-100 wt%*”. In other words, the resin may be contained in an amount of 0 to 37.5 wt% in the conductive paint. This resin amount of 0 to 37.5 wt% in Sumitomo Cement KK corresponds, as represented by volume, a much broader range of 0-296 parts by volume with respect to 100 parts by volume of the conductive particles.

The Examiner found Applicant’s previously submitted arguments to be unpersuasive since the claimed range is still completely encompassed by the range disclosed in Sumitomo Cement KK’s and there is presently no evidence on record showing that the claimed range achieves unexpected results. However, Applicant strongly disagrees with the Examiner in this regard.

Based on the experimental data in the Examples and Comparative Examples of the specification, Applicant have clearly shown on the record that the claimed range of “0.03-9.3

parts by volume” achieve superior results not expected based on the teachings of Sumitomo Cement KK.

The resin amount of 296 parts by volume taught in Sumitomo Cement KK falls between 147 parts by volume in Comparative Examples 9 & 10 and 367 parts by volume in Comparative Examples 11 & 12 of the present specification. In these Comparative Examples, the electric resistance values are high while in Examples 1 to 6 in which the resin amount is in a range from 0.037 to 9.3 parts by volume, the electric resistance values are very low (see page 49 line 25 to page 50 line 19 of the specification). Thus, contrary to the Examiner’s assertions in the action, unexpected and superior properties of the claimed range (i.e. the presence of resin in an amount of 0.037 to 9.3 parts by volume) are fully demonstrated by the Examples and Comparative Examples of the present specification.

As stated in the specification, it was considered in the prior art that a conductive film having a low electric resistance value cannot be formed as shown in Japanese Laid-open Patent Publication No. 9-109259 (1997) without the use of a large amount of binder resin. The present invention overcome the problems of the prior art by obtaining a transparent conductive film having a mechanical strength, a low electric resistance value, and little scattering even without the use of a large amount of resin serving as a binder and without calcining at a high temperature. Such superior properties are not at all taught in the cited references especially since Sumitomo Cement KK teach a range (below 0.037 by volume and above 9.3 parts by volume) which, as shown in the Comparative Examples, do not possess the superior properties of the present invention. As the Examiner already knows, a showing of superior and unexpected properties can rebut a *prima facie* case of obviousness. *In re Papesch*, 315 F.2d 381, 137 USPQ 43 (CCPA 1963).

In addition, Sumitomo Cement KK discloses in its paragraph [0019] the necessity of curing the binder in the reinforcement layer in order to settle and firmly fix the conductive filler onto the glass substrate. Sumitomo Cement KK also discloses in its paragraph [0021] (Example 1) that the curing was conducted in the means of heat treatment at a high temperature, namely at 180°C for 30 minutes. However, the present specification, from page 5, lines 5, to page 6 line 12, explains problems such as deformation of resin film substrate and generation of cracks caused by heat treatment at such a high temperature. In other words, Sumitomo Cement KK never solves the problems that are brought about due to the heat treatment at a high temperature. Hence, it is clear that one skilled in the art would not be motivated based on the teachings of the cited

references to modify the range of 0-296 parts by volume to arrive at the claimed range (i.e. 0.037 to 9.3 parts by volume) of the present invention

With regard to the Examiner's statements in the Advisory Action noting that "*0.03 volume percent*" is new matter, Applicant strongly disagrees with the Examiner in this regard. Applicant notes that claim 8 was amended to recite "*approximately 0.03 – 9.3 parts by volume*" in the Amendment filed January 21, 2003, after which a number of Office Actions was issued, none of which rejected the recitation on new matter grounds (see office actions dated March 14, 2003 and October 16, 2003). An Examiner telephone interview was also conducted on December 1, 2003 in which the Examiner never indicated that the amended range of approximately 0.03 - 9.3 parts by volume is new matter. The Amendment filed January 21, 2003 cited such support for the amendment in Examples 1-6 of the specification. Thus, Applicant strongly believes that the range of approximately 0.03 - 9.3 parts by volume is not new matter.

Thus, for these reasons above, Applicant submits that this rejection can no longer be sustained and should be withdrawn.

(v) Other

None

VIII. CLAIMS APPENDIX

A copy of the claims involved in the present appeal is attached hereto as Appendix A.

IX. EVIDENCE APPENDIX

No evidence pursuant to §§ 1.130, 1.131, or 1.132 or entered by or relied upon by the Examiner is being submitted.

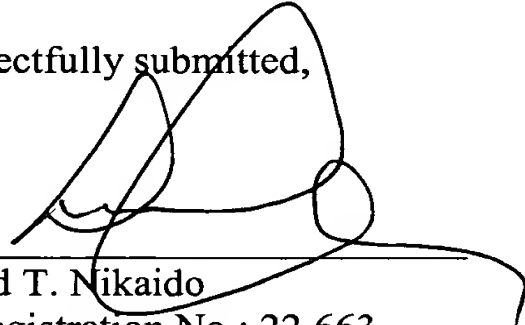
X. RELATED PROCEEDINGS APPENDIX

No related proceedings are referenced in II. above. Thus, no copies of decisions in related proceedings are provided.

Applicant believes that no additional fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 18-0013, under Order No. OKA-0019 from which the undersigned is authorized to draw.

Dated: August 30, 2006

Respectfully submitted,

By 
David T. Nikaido
Registration No.: 22,663

Lee Cheng
Registration No.: 40,949

RADER, FISHMAN & GRAUER PLLC
1233 20th Street, N.W.
Suite 501
Washington, DC 20036
(202) 955-3750
Attorneys for Applicant

APPENDIX A

Claims Involved in the Appeal of Application Serial No. 09/748,188.

1. (Canceled).

2. (Previously Presented) The transparent conductive film according to claim 8, wherein said layer containing the conductive particles is formed by applying a dispersion liquid, which contains the conductive particles and the resin, onto the support and drying the liquid, said resin being contained at an amount of 0.03-9.3 parts by volume with respect to 100 parts by volume of said conductive particles in said dispersion liquid as represented by volume before dispersion.

3. (Previously Presented) The transparent conductive film according to claim 8, wherein said support is a film made of resin.

4. (Withdrawn) A method of producing a transparent conductive film, comprising the steps of:

applying a dispersion liquid on a support and drying the liquid, said dispersion liquid containing conductive fine particles and a resin, said resin being contained at an amount of 73 parts by volume or less with respect to 100 parts by volume of said conductive fine particles in said dispersion liquid as represented by volume before dispersion, thereby to form a layer containing the conductive fine particles; and then

compressing said layer containing the conductive fine particles to form a compressed layer of the conductive fine particles; and further

impregnating said formed compressed layer of the conductive fine particles with a transparent substance.

5. (Withdrawn) The method of producing a transparent conductive film according to claim 4, wherein said layer containing the conductive fine particles is compressed at a compression force of at least 44 N/mm².

6. (Withdrawn) The method of producing a transparent conductive film according to claim 4, wherein said layer containing the conductive fine particles is compressed at such temperature that said support is not deformed.

7. (Withdrawn) The method of producing a transparent conductive film according to claim 4, wherein said layer containing the conductive fine particles is compressed using a roll press machine.

8. (Previously Presented) A transparent conductive film comprising:
a compressed layer on a support, said compressed layer having conductive particles and a resin, said resin being approximately 0.03-9.3 parts by volume with respect to 100 parts by volume of said conductive particles, said compressed layer formed by compressing the conductive particles and the resin on the support with a compression force of at least 44N/mm^2 ,
wherein said compressed layer further comprises an impregnated transparent substance.